

REMARKS

Claims 1 and 2 have been amended. Support for these amendments can be found in the paragraph bridging pages 118-119 of the specification and in the first paragraph on page 222 of the specification.

Upon entry of the Amendment, claims 1, 2, 4 and 6-13 will be pending.

Claims 1-4 and 5 have been rejected under 35 U.S.C. § 103(a) as obvious over Usagawa et al in view of the 1999 *Theory of the Photographic Process* publication, Fourth Edition, by T.H. James.

Applicants submit that Usagawa et al. and James do not disclose or render obvious the subject matter of claims 1, 2 and 4 as set forth above and, accordingly, request withdrawal of this rejection.

On page 6 of the Office Action dated June 13, 2006, the Examiner states that the present claims do not relate to silver halide grains that are spectrally sensitized with the dyes set forth in the claims but, instead, relate to “a silver halide photographic material which comprises at least one sensitizing dye.” Therefore, the Examiner asserts that the dyes in Applicants’ claims can be incorporated in any layer of the photothermographic material including the filter layer, such as taught by Usagawa et al.

Applicants have amended claims 1 and 2 to further clarify that the silver halide photographic material contains a silver halide emulsion that contains silver halide grains that are sensitized with at least one sensitizing methine dye represented by the formula recited in the claims.

The methine dye is a sensitizing dye, that is, it is a dye for spectral sensitizing of silver halide grains. As disclosed at page 1 of the present application, in the past, many sensitizing dyes have been made and examined, but it is not possible to know the photographic capabilities of such dyes in advance of their examination. As disclosed at page 1 of the present application, seemingly small (trace) structural differences of a sensitizing dye largely affect photographic capabilities, such as, sensitivity, fog, storage stability and residual colors after processing. As disclosed at page 2 of the present application, a sensitizing dye has been sought which improves sensitivity of silver halide grains without causing adverse effects, such as, fog, residual color, and deteriorated pressure durability.

Applicants maintain their position that one of ordinary skill would not have been led to combining the teachings of James with those of Usagawa et al because there is no motivation to do so.

In particular, and as discussed above, the present invention as set forth in claims 1 and 2 relates to a silver halide photographic material which comprises a silver halide emulsion containing silver halide grains that are sensitized with at least one sensitizing methine dye. The sensitizing dye is for improving the sensitivity of silver halide.

On the other hand, the Usagawa et al technique, including compound (35) pointed out by the Examiner, relates to a filter dye. The filter dye is not a sensitizing dye, and is added to absorb excess light, and in some cases, decreases sensitivity. In view of this, Applicants submit that the present invention is totally opposite to that of Usagawa et al.

Accordingly, Applicants submit there would be no motivation for combining the teachings of Usagawa et al relating to a filter dye with the teachings of James to reach the present invention which targets a sensitizing methine dye.

In further response to the Examiner's argument that in view of Table 8.3 of the cited James publication, it would have been obvious to employ an oxazole ring or a thiazole ring, instead of the pyrrole ring disclosed in compound (35) of Usagawa et al, Applicants again point out that Table 8.3 of James discloses various cyanine dyes comprised of a 6-membered benzene ring condensed to a 5-membered ring which can be an oxazole ring, a thiazole ring or a pyrrole ring, whereas the present invention of claim 1 is characterized in that a specific azole ring (or a pyridine ring, etc.) in the sensitizing methine dye is condensed with a specific hetero ring, such as a furan ring as recited in claim 1. There is no disclosure or suggestion with regard to this characteristic in James.

James does not disclose a furan ring condensed with a 5-membered or 6-membered ring. Accordingly, Applicants submit that the teachings of James are not relevant to claim 1.

Usagawa et al disclose a filter dye where a hetero ring is condensed with a ring where X⁵¹ or X⁵² represents a dimethylmethylene group, but Usagawa et al do not disclose or suggest an oxazole ring or a thiazole ring, or any of the other rings covered by claims 1 and 2 in a sensitizing methine dye.

In addition, Applicants again point out that Table 8.3 of James shows that changing the constituent atoms (carbon atom/hetero atom) of a ring brings about big differences in physical properties. Accordingly, this means that simply substituting one ring atom for another does not

lead to an equivalence between atoms, even if the atoms are in the same group of the Periodic Table. Therefore, Applicants submit that it is not obvious to substitute one atom for another atom in the same group.

Further, James does not state that the various nuclei disclosed in Table 8.3 are equivalent to the rings set forth in the present claims.

In view of the above, it is apparent that the properties of the sensitizing dye would be changed depending on the atoms constituting the ring. Therefore, Applicants submit that one of ordinary skill in the art would not be led to substituting one ring atom for a different ring atom with a reasonable expectation of success.

With respect to independent claim 2, Applicants submit that Usagawa et al do not satisfy the recitations of claim 2.

Claim 2 requires that Y be selected from Y-1 to Y-26 of claim 2. Applicants submit that there is no disclosure in Usagawa et al of compounds that satisfy Y-1 to Y-26 of claim 2. The Examiner has not identified any compound in Usagawa et al that satisfies the recitations of claim 2.

Further, James is not relevant to claim 2 because it does not disclose any of Y-1 to Y-26.

Still further, as discussed above, one of ordinary skill in the art would not be led to combining Usagawa et al with James.

In addition, as discussed above, James shows that different rings have different properties and are not equivalent to each other.

With respect to claim 4, which depends from claim 1, compound (35) of Usagawa et al does not satisfy formula (XX) of claim 4, since compound (35) contains a carbon atom in a position corresponding to X^{51} and X^{52} . Again, the Examiner has not addressed this argument.

Further, James does not disclose a furan ring condensed with a 5-membered ring as in formula (XX).

Still further, as discussed above, one of ordinary skill in the art would not be led to combining Usagawa et al with James.

In addition, as discussed above, James shows that different rings have different properties and are not equivalent to each other.

In general, Applicants submit that the Examiner is employing hindsight to arrive at the present claims, and that there is no motivation for one of ordinary skill in the art to make the substitutions proposed by the Examiner.

In view of the above, Applicants submit that Usagawa et al and James do not disclose or render obvious the subject matter of claims 1, 2, and 4 and, accordingly, request withdrawal of this rejection.

Claims 1-4 and 11-13 have been rejected under 35 U.S.C. § 103(a) as obvious over JP 2000-63690.

Applicants have amended claims 1 and 2 as discussed above.

The Examiner, in the Office Action of June 13, 2006, relies on compound D-38, at columns 36 to 37, and on dyes D-1 to D-146 at columns 21 to 76 for dyes that contain a thiophene ring.

The Examiner asserted that the compounds of formula (II) in JP '690 contains a Y² that can be O, S, Se, N or C, and a Q which is a group of non-metallic atoms necessary to form a benzene ring having a heterocyclic ring fused thereto, and that A² in JP '690 is a group necessary for forming a methine pigment.

The Examiner recognized that JP '690 does not disclose the dyes of the present invention, but stated that they are substantially similar to those set forth in the present claims.

The Examiner stated that JP '690 does not exemplify a furan group of claim 1, or a pyrrole ring of claim 11, but asserted that the furan group is within the scope of a group of non-metallic atoms necessary to form a benzene ring having a heterocyclic ring fused thereto, as disclosed in JP '690, and further asserted that the oxygen atom (of the furan group) or the nitrogen atom (of the pyrrole group) belong to the same column of the periodic Table of Chemical Elements.

The Examiner argued that one of ordinary skill in the art would have expected that a methine dye of similar properties could be formed with the above substitutions.

The Examiner asserted that the condensed groups in claim 2 are within the scope of generic formula (II) in JP '690, where Y² are each O, S, Se, N or C, and Q is a heterocyclic compound such as the thiophene group exemplified therein.

The Examiner asserted that a *prima facie* case of obviousness can be made when chemical compounds have very close structural similarity and similar utilities.

With respect to the Examiner's general comments that it would have been obvious to make the substitutions necessary to arrive at the present invention, Applicants maintain that the

Examiner has not provided sound reasons why the invention is obvious, but has made a general statement which is not supported by the applicable law. The Examiner must provide specific reasons and evidence to show obviousness, and he has not done so in the present case.

Although JP '690 discloses a specific dye including a thiophene ring having S atom, Applicants submit that one of ordinary skill in the art would not expect that a dye including a hetero ring having the other atom attains the preferred spectroscopic property, sensitivity and residual color effect after processing, as shown in the present invention.

In addition, as discussed above, Table 8.3 of James shows that changing the constituent atoms (carbon atom/hetero atom) of a ring brings about the big differences in physical properties. Accordingly, this means that simply substituting one ring atom for another rings atom does not lead to the equivalence therebetween.

In view of the above, it is apparent that the properties of the sensitizing dye would be changed depending on the atoms constituting the ring. Therefore, Applicants submit that one of ordinary skill would not be led to substituting one ring atom for a different ring atom with a reasonable expectation of success.

Thus, even if one could expect a compound structure similar to that of the present invention, one would not expect that this compound is equivalent to the compounds of the present claims with respect to spectroscopic property, sensitivity and residual color effect after processing.

Applicants submit that it is an over-simplification of the prior art to assert, as the Examiner has done, that oxygen and nitrogen in the Periodic Table of Elements are known to be

equivalent to a sulfur atom in the Periodic Table of Elements, and, therefore, one could readily substitute one for the other, and that this assertion is disproved by the James publication cited by the Examiner which shows that different rings have different properties and are not equivalent to each other.

In general, Applicants submit that the Examiner is employing hindsight to arrive at the present claims and there is no motivation for one of ordinary skill in the art to make the substitutions proposed by the Examiner.

Accordingly, Applicants submit that JP '690 does not disclose or render obvious the subject matter of claims 1, 2, 4 and 11 to 13 and, therefore, request withdrawal of this rejection.

Claims 6-9 have been rejected under 35 U.S.C. § 103(a) as obvious over either JP '250 or JP '950 in view of either Parton et al or Hioki et al.

The Examiner, in the Office Action of June 13, 2006, recognizes that JP '250 and JP '950 do not disclose a compound in which a nucleus connected to the thiophene contains an oxygen atom, a sulfur atom, a selenium atom, a nitrogen atom or a carbon atom, but relies on Parton et al and Hioki et al to show nuclei containing such atoms.

Applicants maintain that the Hioki et al patent is not relevant to claims 6 to 9 because none of the nuclei disclosed in Hioki et al contains a thiophene condensed with a 5-membered nitrogen containing ring. Similarly, none of the various nuclei disclosed in Parton et al are condensed with a thiophene ring as required in claim 6.

In the Office Action of June 13, 2006, the Examiner states that a thiophene group and a heterocyclic group have been known to be associated with a methine group to form a methine

dye, such as in JP '690, JP '250 or JP '950. The Examiner asserts that it would be expected for one of ordinary skill in the art that a pyrrole group or a furan group is equivalent to a thiophene group or other heterocyclic group containing chemical elements from similar groups from the Periodic Table. The Examiner asserts that the claimed dyes would have been *prima facie* obvious in the absence of criticality of furan, pyrrole or thiophene and the substituents associated herewith.

With respect to Applicants' argument that there is no motivation to combine the various teachings of the prior art, the Examiner previously asserted that the prior art can be modified as long as there is a reasonable expectation of success. The Examiner argued that since the various chemical elements are known to be equivalent to each other as shown in the Periodic Table of Elements, that one would have a reasonable expectation of success.

In response, Applicants maintain that the Examiner has not provided any evidence to support his assertions. Applicants submit that the Examiner's assertions are mere speculation. The Examiner has not cited any prior art to support his assertion that it would be expected in the context of the present invention that a pyrrole group or a furan group is equivalent to a thiophene group or other heterocyclic group. Further, no showing of criticality is necessary when a *prima facie* case of obviousness does not exist. The Examiner has not provided any motivation to make the substitutions he suggests.

Further, although JP '250 and JP '950 disclose mainly a dye having a tellurazole ring, Applicants submit that one of ordinary skill in the art would not expect the above-mentioned

effects of a preferred spectroscopic property, sensitivity and residual color effect after processing of the present invention, as well.

In addition, applicants point out, as discussed in detail above, that the James publication cited by the Examiner shows that different rings have different properties and are not equivalent to each other.

In general, Applicants submit that the Examiner is employing hindsight to arrive at the present claims, and that there is no motivation for one of ordinary skill in the art to make the substitutions proposed by the Examiner.

In view of the above, Applicants submit that claims 6 to 9 are patentable over the cited references and, accordingly, request withdrawal of this rejection.

Claims 1-4 and 6-13 have been rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent 6,828,087.

Claims 1-4 and 6-13 have been provisionally rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-5 of co-pending Application No. 10/927,469, which issued as U.S. Patent 7,052,827 on May 30, 2006.

While Applicants respectfully submit that the present invention is not obvious over claims 1-5 of U.S. Patent No. 6,828,087 or U.S. Patent No. 7,052,827, to expedite allowance of the present Application, Applicants are submitting herewith a terminal disclaimer to obviate the obviousness-type double patenting rejection over claims 1-5 of U.S. Patent No. 6,828,087 and to obviate the provisional obviousness-type double patenting rejection over claims 1-5 of U.S.

U.S. Appln. No.: 09/931,309
Amendment under 37 C.F.R. § 1.111

Patent No. 7,052,827. Reconsideration and withdrawal of each of the foregoing rejections is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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